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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,214	03/05/2002	Eugene M. Levin	31257-UT	8615

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DICKE, BILLIG & CZAJA, P.L.L.C.
FIFTH STREET TOWERS
100 SOUTH FIFTH STREET, SUITE 2250
MINNEAPOLIS, MN 55402

EXAMINER

SEMUNEGUS, LULIT

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 04/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,214

Applicant(s)

LEVIN ET AL.

Examiner

Lulit Semunegus

Art Unit

3641

-- Th MAILING DATE of this communication app ars on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed December 08, 2003 have been fully considered but they are not persuasive. Applicant argues that the reference, Forward et al (6,116,544) do not teach an electrodynamic tether adapted to spin at a rate of at least twice that of the orbital rate or that the electric control system is not adapted to control the electric current in the tether to thereby control the spinning and increase average long term orbit transfer or power generation rates. Applicant admits that forward et al discloses a control system for stabilizing the tether and contemplates maintaining a particular angle of the tether relative to the earth's magnetic field but does not teach a type of rotation at a rate approximately two or more times the orbital rotation rate as claimed in independent claims 1 and 20. In response to these arguments, examiner would like to point out that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Claim Objections

2. Claim 1 is objected to because of the following informalities: the word adapted has been misspelled in line 7 in claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 5-7, 10-14, 17-18 and 20-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Forward et al (6,116,544).

Forward et al teach a tether system and a method of operating a tether system for space applications comprising: at least one electron collector (309,611); at least one electron emitter (313,613); a power system (311); an energy storage device (col. 34, line 14); a deployer (1100); at least one spinning electrodynamic multistrand tether (305,603) which can be a solar array (col. 9, line 38), electrically coupled to the power system (fig. 6-10) where electrical current inherently exists between the electron collector and the electron emitter and inherently capable of spinning at least approximately two times faster on average than an orbital revolution with respect to inertial space and is drivable in both directions and an electric control system (605) said system controlling the electric current in the tether to thereby control the spinning and

increase average long-term orbit transfer or power generation rates, taking advantage of spinning (col. 17, lines 57-67, fig. 6-10).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made:

6. Claims 4, 8-9, 15-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forward et al (6,116,544).

In regards to claim 4, Forward et al teach all the limitations of claim 4 except two electron emitters and two electron collectors. At the time of the invention, it would have been obvious to one ordinary skilled in the art to have two electron emitters and collectors since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

In regards to claims 8-9 and 15-16, Forward et al do not expressly teach the solar array being thin-film or centrifugally-stabilized or the deployer being bound with a weak adhesive or bound with a vacuum grease. At the time of the invention, it would have been obvious to one ordinary skilled in the art to have a thin film or centrifugally-stabilized solar system or the deployed bound by either a weak adhesive or a vacuum grease since applicant has not disclosed that using either method of bounding solves

any stated problem or is for any particular purposes and it appears that the invention would perform equally well with either method of bounding.

In regards to claim 19, Forward et al do not expressly teach the tether system comprising of a multiple tether where the tethers form a configuration selected from the group consisting of a triangular, polygonal or polyhedron configuration. At the time of the invention, it would have been obvious to one ordinarily skilled in the art to have multiple tether with different configuration tether since applicant has not disclosed that any configuration tether solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with triangular, polygonal or polyhedron tether configuration, furthermore, it would have been obvious to one ordinarily skilled in the art to have multiple tether since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3641

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lulit Semunegus whose telephone number is (703) 306-5960. The examiner can normally be reached on Mon-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Lulit Semunegus
Examiner
Art Unit 3641


MICHAEL J. CARONE
SUPERVISORY / ART UNIT 3641